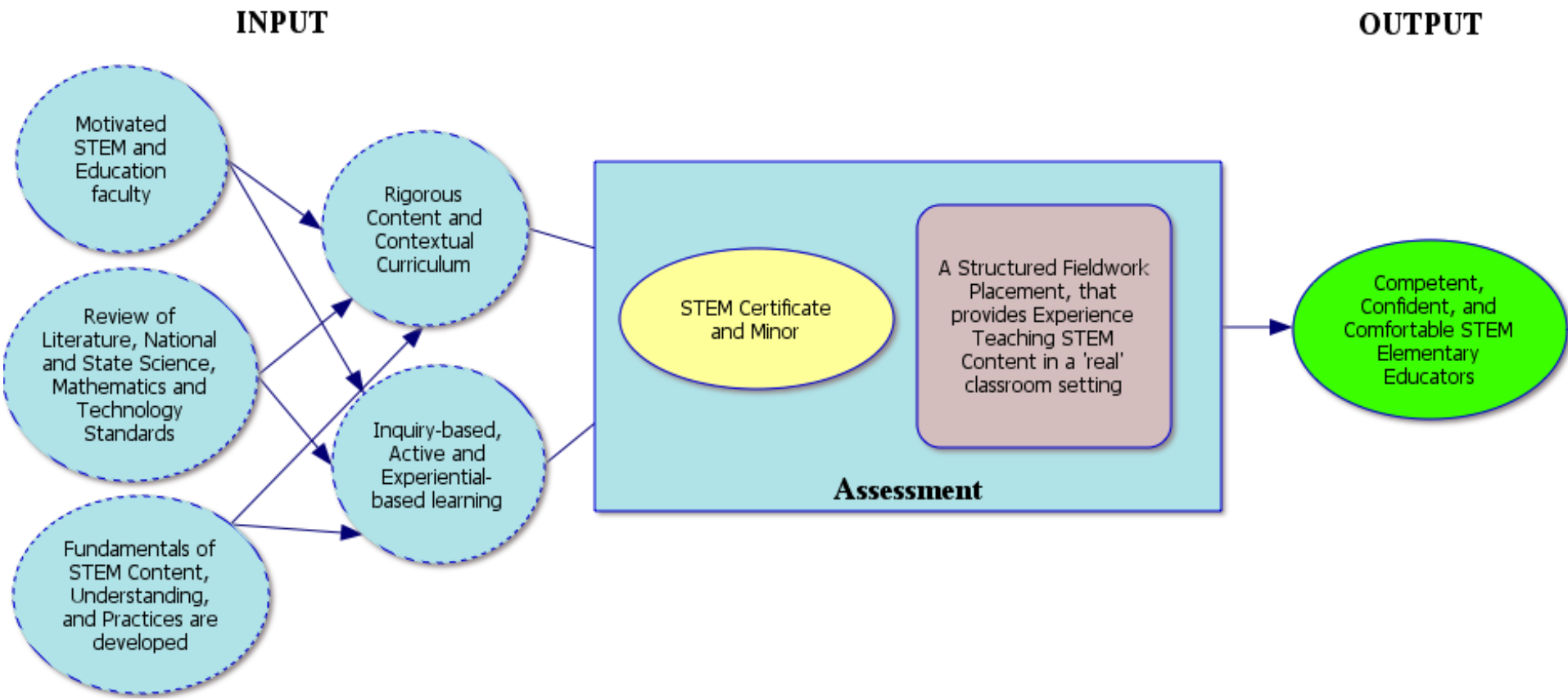




ST. CATHERINE UNIVERSITY

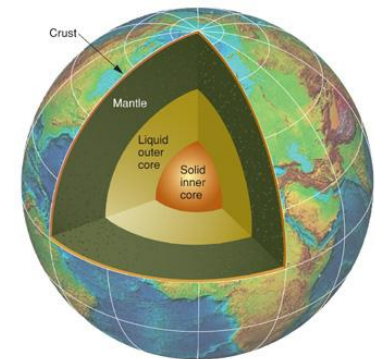
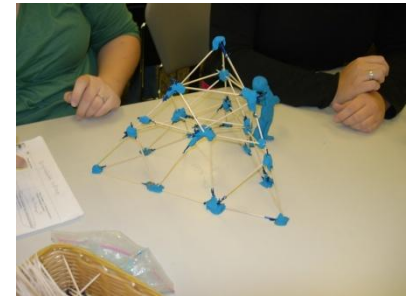
GLOBE and STEM: A Natural Partnership

*Tony P. Murphy, Associate Dean, Education,
Lori Maxfield, Associate Professor, Education,
SCU, St. Paul, MN*



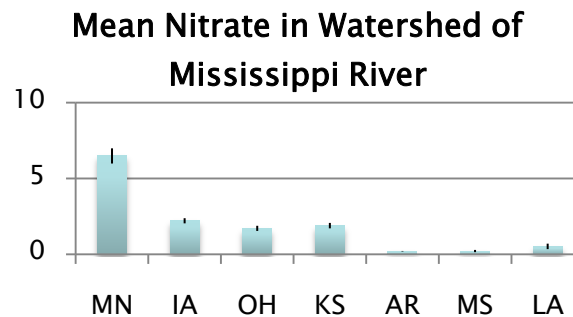
STEM Courses

- CHEM 1000 Chemistry of Life
- BIOL 1100 Environmental Biology
- PHYS 1200 Engineering in Your World
- CHEM 2150 Environmental Science: A Path to Sustainability
- PHYS 2994 Robots and the Earth: A Scientific Journey through Time



BIOL 1100 Environmental Biology

Dead Zone Module:
Hydrology Protocols
Hydrology Data
Soils Protocols



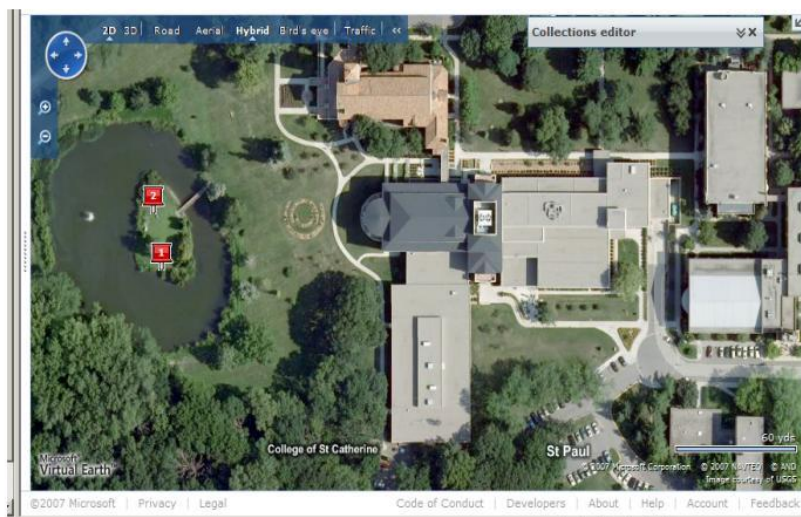
Climate Change Module:
Atmosphere Protocols



CHEM 1000 Chemistry of Life



Water Quality Module: Hydrology Protocols



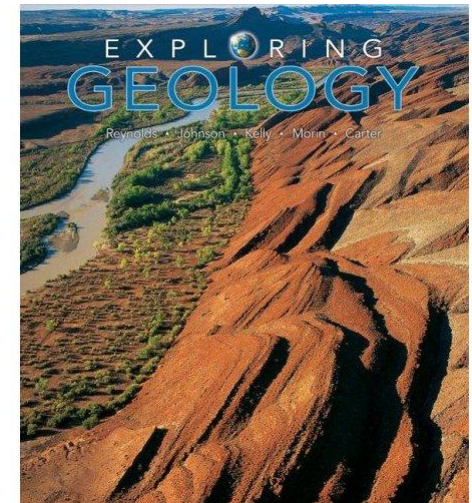
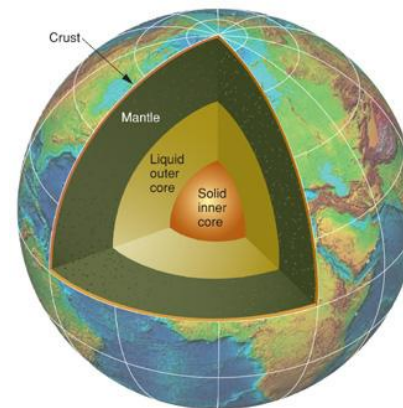
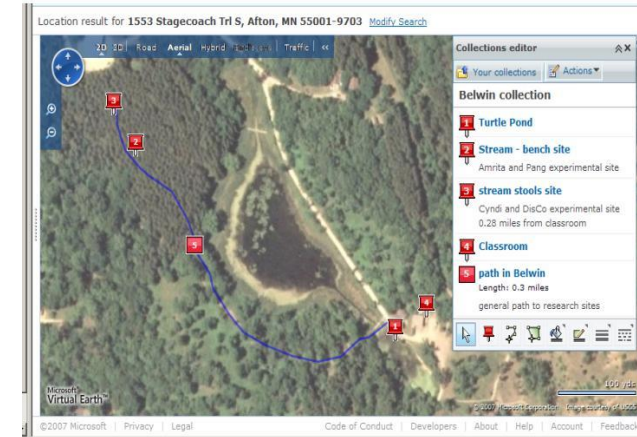
Minor Courses

**CHEM 2150 Environmental Science: A Path
to Sustainability**

Hydrology Protocols

**PHYS 2994 Robots and the Earth:
A Scientific Journey through Time**

Soils

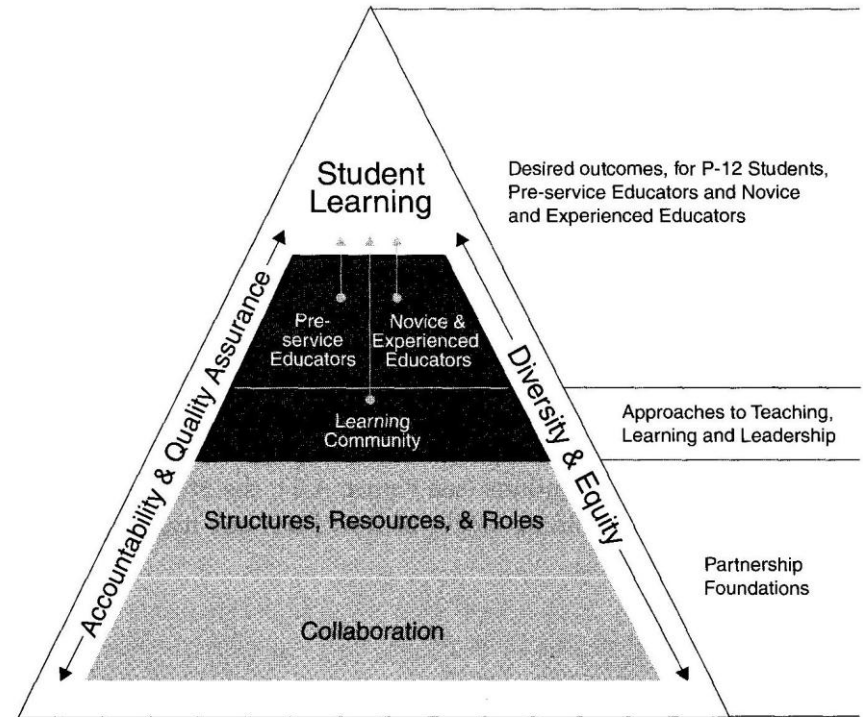


SCU Professional Development Schools

EcoSTARS PDS Model

Goals:

- Increase in student learning in environmental education concepts;
- Increase in student skill levels (taking environmental action);
- Increase in student enthusiasm for STEM and development of skills and passion for responsible environmental stewardship;
- Increase in K–6 teachers' confidence and knowledge in environmental education;
- Increase in education majors' confidence and knowledge in STEM and environmental education; and
- Continue the development of a model of integrated environmental learning that can be used in other school districts in Minnesota and throughout the country.



Kindergarten and Second Grade Classrooms: Earth as a System

- Seasons and Phenology
- Learning Activity
 - What Can We Learn about Our Seasons?
 - A First Look at Phenology
- Protocol
 - Green-down



Photograph by Sher Stoneman

First and Third Grade Classrooms: Atmosphere

➤ Learning Activities

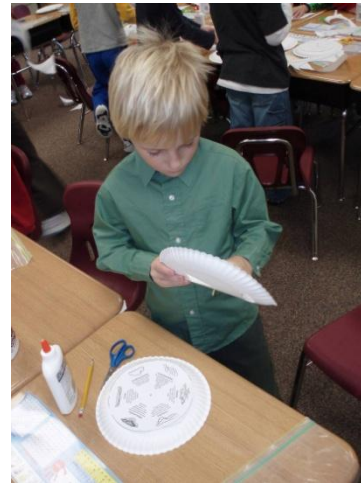
- Observing, Describing, and Identifying Clouds
- Estimating Cloud Cover
- Cloud Watch

➤ Protocol

- Cloud Protocols



First and Third Grade Classrooms: Cloud Protocols



Fourth Grade Classrooms: Hydrology



Photograph by Sher Stoneman

- Learning Activities
 - Water Walk
 - Model a Catchment Basin
 - Practicing Your Protocols
- Protocols
 - Water Transparency
 - Water Temperature

Fourth Grade Classrooms: Hydrology



Photographs by Sher Stoneman

Fifth and Sixth Grade Classrooms: Soil



- Learning Activities
 - Why Do We Study Soil?
 - Soil and My Backyard
- Protocols
 - Soil Site Selection and Exposure
 - Soil Characterization

Fifth and Sixth Grade Classrooms: Soil



STEM Certificate and Minor Foundation Partnerships

Foundation Support

3M



Medtronic

Alleviating Pain · Restoring Health · Extending Life

EcoSTARS Foundation and School Partnerships

Foundation Support



EcoSTARS Partners



HAPPY St. Patrick's Day